

EAST Search History

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|------|------------------------|--------------------|------------------|---------|------------------|
| L1 | 474 | (546/345).CCLS. | US-PGPUB; USPAT | OR | OFF | 2008/01/07 02:09 |
| L2 | 85 | 1 and dichloropyridine | US-PGPUB; USPAT | OR | OFF | 2008/01/07 02:10 |

EAST Search History

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|--------|----------------------------------|----------|------------------|---------|------------------|
| L1 | 0 | ("s(shapiroadjrafeal.inv.")).PN. | US-PGPUB | OR | OFF | 2008/01/07 00:58 |
| L2 | 0 | ("sshapiroadjrafeal.inv.")).PN. | US-PGPUB | OR | OFF | 2008/01/07 00:58 |
| L3 | 755753 | s shapiro adj rafeal.inv. | US-PGPUB | OR | OFF | 2008/01/07 00:58 |
| L5 | 0 | (shapiro adj rafeal.inv.) | US-PGPUB | OR | OFF | 2008/01/07 01:00 |

EAST Search History

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|--------|----------------------------------|----------|------------------|---------|------------------|
| L1 | 0 | ("s(shapiroadjrafeal.inv.")).PN. | US-PGPUB | OR | OFF | 2008/01/07 00:58 |
| L2 | 0 | ("sshapiroadjrafeal.inv.")).PN. | US-PGPUB | OR | OFF | 2008/01/07 00:58 |
| L3 | 755753 | s shapiro adj rafeal.inv. | US-PGPUB | OR | OFF | 2008/01/07 00:58 |
| L5 | 0 | (shapiro adj rafeal.inv.) | US-PGPUB | OR | OFF | 2008/01/07 01:00 |

L3 ANSWER 6 OF 9 CASREACT COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 140:93833 CASREACT

TITLE: An Efficient Two-Step Total Synthesis of the Quaterpyridine Nemertelline

AUTHOR(S): Bouillon, Alexandre; Voisin, Anne Sophie; Robic, Audrey; Lancelot, Jean-Charles; Collot, Valerie; Rault, Sylvain

CORPORATE SOURCE: UFR des Sciences Pharmaceutiques, Centre d'Etudes et de Recherche sur le Medicament de Normandie, Caen, 14032, Fr.

SOURCE: Journal of Organic Chemistry (2003), 68(26), 10178-10180

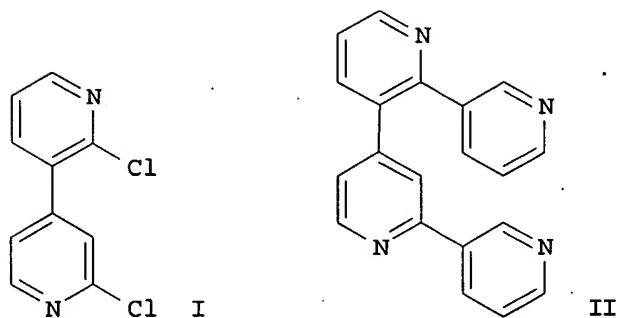
CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

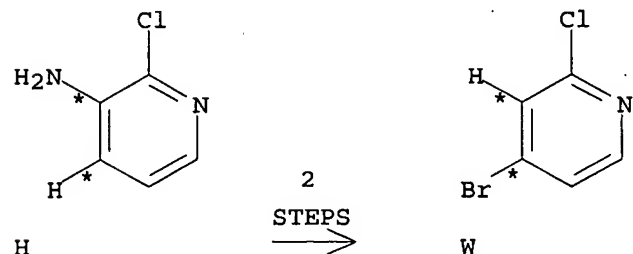
GI



AB Regioselective and univocal Suzuki cross-coupling reactions performed on halopyridinyl boronic acids provide a flexible and versatile route to a multigram scale synthesis of 2,2'-dichloro-3,4'-bipyridine (I), which allows couplings with excess pyridin-3-yl boronic acid to give a new and efficient two-step rapid synthesis of nemertelline (II), the quaterpyridine neurotoxin isolated from a Hoplonemertine sea worm.

RX(13) OF 44 COMPOSED OF RX(4), RX(6)

RX(13) H ==> W



RX(4) RCT H 6298-19-7

Updated Search

RGT O 10035-10-6 HBr, K 7632-00-0 NaNO₂, P
7787-70-4 CuBr
PRO N 52200-48-3
SOL 7732-18-5 Water

RX(6) RCT N 52200-48-3

STAGE(1)

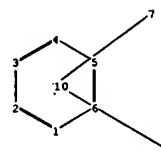
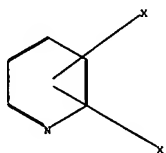
RGT X 4111-54-0 LiN(Pr-i)₂
CAT 7726-95-6 Br₂
CON -78 - -50 deg C

STAGE(2)

RGT J 7647-01-0 HCl
SOL 7732-18-5 Water

PRO W 73583-37-6
NTE regioselective

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



chain nodes :

7 8

ring nodes :

1 2 3 4 5 6

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6

normalized bonds :

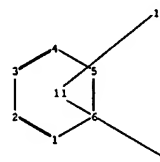
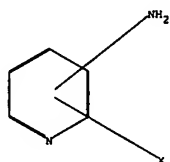
1-2 1-6 2-3 3-4 4-5 5-6

isolated ring systems :

containing 1 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:Atom 10:Atom



chain nodes :

7 10

ring nodes :

1 2 3 4 5 6

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6

normalized bonds :

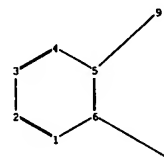
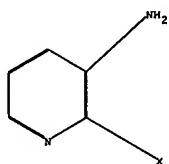
1-2 1-6 2-3 3-4 4-5 5-6

isolated ring systems :

containing 1 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:Atom 10:CLASS 11:CLASS



chain nodes :

7 9

ring nodes :

1 2 3 4 5 6

chain bonds :

5-9 6-7

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6

exact/norm bonds :

5-9

exact bonds :

6-7

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6

isolated ring systems :

containing 1 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 9:CLASS

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:sssptal612bxr

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

| | | | |
|--------------|----|-----------------|--|
| NEWS | 1 | | Web Page for STN Seminar Schedule - N. America |
| NEWS | 2 | AUG 06 | CAS REGISTRY enhanced with new experimental property tags |
| NEWS | 3 | AUG 06 | FSTA enhanced with new thesaurus edition |
| NEWS | 4 | AUG 13 | CA/CAPplus enhanced with additional kind codes for granted patents |
| NEWS | 5 | AUG 20 | CA/CAPplus enhanced with CAS indexing in pre-1907 records |
| NEWS | 6 | AUG 27 | Full-text patent databases enhanced with predefined patent family display formats from INPADOCDB |
| NEWS | 7 | AUG 27 | USPATOLD now available on STN |
| NEWS | 8 | AUG 28 | CAS REGISTRY enhanced with additional experimental spectral property data |
| NEWS | 9 | SEP 07 | STN AnaVist, Version 2.0, now available with Derwent World Patents Index |
| NEWS | 10 | SEP 13 | FORIS renamed to SOFIS |
| NEWS | 11 | SEP 13 | INPADOCDB enhanced with monthly SDI frequency |
| NEWS | 12 | SEP 17 | CA/CAPplus enhanced with printed CA page images from 1967-1998 |
| NEWS | 13 | SEP 17 | CAPplus coverage extended to include traditional medicine patents |
| NEWS | 14 | SEP 24 | EMBASE, EMBAL, and LEMBASE reloaded with enhancements |
| NEWS | 15 | OCT 02 | CA/CAPplus enhanced with pre-1907 records from Chemisches Zentralblatt |
| NEWS | 16 | OCT 19 | BEILSTEIN updated with new compounds |
| NEWS | 17 | NOV 15 | Derwent Indian patent publication number format enhanced |
| NEWS | 18 | NOV 19 | WPIX enhanced with XML display format |
| NEWS | 19 | NOV 30 | ICSD reloaded with enhancements |
| NEWS | 20 | DEC 04 | LINPADOCDB now available on STN |
| NEWS | 21 | DEC 14 | BEILSTEIN pricing structure to change |
| NEWS | 22 | DEC 17 | USPATOLD added to additional database clusters |
| NEWS | 23 | DEC 17 | IMSDRUGCONF removed from database clusters and STN |
| NEWS | 24 | DEC 17 | DGENE now includes more than 10 million sequences |
| NEWS | 25 | DEC 17 | TOXCENTER enhanced with 2008 MeSH vocabulary in MEDLINE segment |
| NEWS | 26 | DEC 17 | MEDLINE and LMEDLINE updated with 2008 MeSH vocabulary |
| NEWS | 27 | DEC 17 | CA/CAPplus enhanced with new custom IPC display formats |
| NEWS | 28 | DEC 17 | STN Viewer enhanced with full-text patent content from USPATOLD |
| NEWS | 29 | JAN 02 | STN pricing information for 2008 now available |
| NEWS EXPRESS | 19 | SEPTEMBER 2007: | CURRENT WINDOWS VERSION IS V8.2, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 19 SEPTEMBER 2007. |
| NEWS HOURS | | | STN Operating Hours Plus Help Desk Availability |
| NEWS LOGIN | | | Welcome Banner and News Items |

Updated Search

NEWS IPC8 For general information regarding STN implementation of IPC 8

Enter NEWS followed by the item number or name to see news on that specific topic.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 00:42:23 ON 07 JAN 2008

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 00:42:34 ON 07 JAN 2008

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STRUCTURE FILE UPDATES: 4 JAN 2008 HIGHEST RN 960040-46-4

DICTIONARY FILE UPDATES: 4 JAN 2008 HIGHEST RN 960040-46-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> e nemertelline/cn

E1 1 NEMECITE (FEH(SIO4).3H2O)/CN

E2 1 NEMEROSIN/CN

E3 1 --> NEMERTELLINE/CN

E4 1 NEMESIS/CN

E5 1 NEMESTRAN/CN

E6 1 NEMETZON/CN

E7 1 NEMETZONE/CN

E8 1 NEMEX/CN

E9 1 NEMEXIN/CN

E10 1 NEMICIDE/CN

E11 1 NEMIFITIDE/CN

E12 1 NEMIFITIDE DITRIFLUTATE/CN

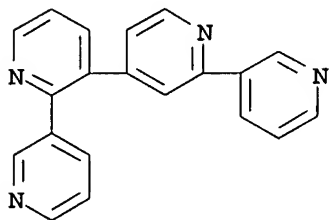
=> s e3

L1 1 NEMERTELLINE/CN

Updated Search

=> d 11

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2008 ACS on STN
RN 59697-14-2 REGISTRY
ED Entered STN: 16 Nov 1984
CN 3,2':3',4':2'',3'''-Quaterpyridine (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Nemertelline
MF C20 H14 N4
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS,
NAPRALERT, RTECS*, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)



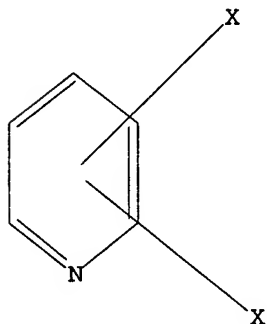
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

8 REFERENCES IN FILE CA (1907 TO DATE)
8 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=>
Uploading C:\Documents and Settings\brobinson1\My Documents\stnweb\Queries\bngb.str

L2 STRUCTURE UPLOADED

=> d 12
L2 HAS NO ANSWERS
L2 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 12
SAMPLE SEARCH INITIATED 00:44:35 FILE 'REGISTRY'

Updated Search

SAMPLE SCREEN SEARCH COMPLETED - 34790 TO ITERATE

5.7% PROCESSED 2000 ITERATIONS 50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 684651 TO 706949
PROJECTED ANSWERS: 42375 TO 48079

L3 50 SEA SSS SAM L2

=> s l2 full
THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 177.90 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 00:44:40 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 696987 TO ITERATE

100.0% PROCESSED 696987 ITERATIONS 40509 ANSWERS
SEARCH TIME: 00.00.03

L4 40509 SEA SSS FUL L2

=> file hcaplus
COST IN U.S. DOLLARS

| | SINCE FILE | TOTAL |
|---------------------|------------|---------|
| | ENTRY | SESSION |
| FULL ESTIMATED COST | 186.89 | 187.10 |

FILE 'HCAPLUS' ENTERED AT 00:44:45 ON 07 JAN 2008
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FILE COVERS 1907 - 7 Jan 2008 VOL 148 ISS 2
FILE LAST UPDATED: 6 Jan 2008 (20080106/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l4/prep
26351 L4
4509774 PREP/RL
L5 6848 L4/PREP
(L4 (L) PREP/RL)

=> file reg
COST IN U.S. DOLLARS

| | SINCE FILE | TOTAL |
|--|------------|-------|
|--|------------|-------|

Updated Search

| | ENTRY | SESSION |
|---------------------|-------|---------|
| FULL ESTIMATED COST | 2.69 | 189.79 |

FILE 'REGISTRY' ENTERED AT 00:44:58 ON 07 JAN 2008
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DICTIONARY FILE UPDATES: 4 JAN 2008 HIGHEST RN 960040-46-4

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TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

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predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
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<http://www.cas.org/support/stngen/stndoc/properties.html>

=>
Uploading C:\Documents and Settings\brobinson1\My Documents\stnweb\Queries\anfjv.str

L6 STRUCTURE UPLOADED

=> s 16
SAMPLE SEARCH INITIATED 00:45:53 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 158952 TO ITERATE

1.3% PROCESSED 2000 ITERATIONS 8 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **INCOMPLETE**
BATCH **INCOMPLETE**
PROJECTED ITERATIONS: 3155529 TO 3202551
PROJECTED ANSWERS: 11204 TO 14228

L7 8 SEA SSS SAM L6

=>
Uploading C:\Documents and Settings\brobinson1\My Documents\stnweb\Queries\bvm.str

L8 STRUCTURE UPLOADED

=> s 18
SAMPLE SEARCH INITIATED 00:46:43 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 695 TO ITERATE

100.0% PROCESSED 695 ITERATIONS 21 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

Updated Search

BATCH **COMPLETE**
PROJECTED ITERATIONS: 12319 TO 15481
PROJECTED ANSWERS: 146 TO 694

L9 21 SEA SSS SAM L8

=> s l8 full
THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 177.90 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 00:46:48 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 14566 TO ITERATE

100.0% PROCESSED 14566 ITERATIONS 420 ANSWERS
SEARCH TIME: 00.00.01

L10 420 SEA SSS FUL L8

=> file hcaplus
COST IN U.S. DOLLARS SINCE FILE TOTAL
ENTRY SESSION
FULL ESTIMATED COST 179.28 369.07

FILE 'HCAPLUS' ENTERED AT 00:46:51 ON 07 JAN 2008
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=> s l10/rct
900 L10
3051239 RCT/RL
L11 746 L10/RCT
(L10 (L) RCT/RL)

=> d his

(FILE 'HOME' ENTERED AT 00:42:23 ON 07 JAN 2008)

FILE 'REGISTRY' ENTERED AT 00:42:34 ON 07 JAN 2008
E NEMERTELLINE/CN

L1 1 S E3
L2 STRUCTURE UPLOADED
L3 50 S L2

Updated Search

=> file hcaplus
COST IN U.S. DOLLARS

| SINCE FILE | TOTAL |
|------------|---------|
| ENTRY | SESSION |
| 0.46 | 372.22 |

FULL ESTIMATED COST

FILE 'HCAPLUS' ENTERED AT 00:47:25 ON 07 JAN 2008
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=> s e3

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L14 18239 L13

=> file reg
COST IN U.S. DOLLARS

| SINCE FILE | TOTAL |
|------------|---------|
| ENTRY | SESSION |
| 2.69 | 383.21 |

FULL ESTIMATED COST

FILE 'REGISTRY' ENTERED AT 00:47:36 ON 07 JAN 2008
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DICTIONARY FILE UPDATES: 4 JAN 2008 HIGHEST RN 960040-46-4

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Updated Search

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

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<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d ihs

YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:n

=> d his

(FILE 'HOME' ENTERED AT 00:42:23 ON 07 JAN 2008)

FILE 'REGISTRY' ENTERED AT 00:42:34 ON 07 JAN 2008

E NEMERTELLINE/CN

L1 1 S E3

L2 STRUCTURE UPLOADED

L3 50 S L2

L4 40509 S L2 FULL

FILE 'HCAPLUS' ENTERED AT 00:44:45 ON 07 JAN 2008

L5 6848 S L4/PREP

FILE 'REGISTRY' ENTERED AT 00:44:58 ON 07 JAN 2008

L6 STRUCTURE UPLOADED

L7 8 S L6

L8 STRUCTURE UPLOADED

L9 21 S L8

L10 420 S L8 FULL

FILE 'HCAPLUS' ENTERED AT 00:46:51 ON 07 JAN 2008

L11 746 S L10/RCT

L12 260 S L11 AND L5

FILE 'REGISTRY' ENTERED AT 00:47:10 ON 07 JAN 2008

E NITRITE/CN

FILE 'HCAPLUS' ENTERED AT 00:47:25 ON 07 JAN 2008

S E3

FILE 'REGISTRY' ENTERED AT 00:47:28 ON 07 JAN 2008

L13 1 S E3/CN

FILE 'HCAPLUS' ENTERED AT 00:47:28 ON 07 JAN 2008

L14 18239 S L13

FILE 'REGISTRY' ENTERED AT 00:47:36 ON 07 JAN 2008

=> e nitrite/cn

E1 1 NITRINE-TDC/CN

E2 1 NITRINOSE/CN

E3 1 --> NITRITE/CN

E4 1 NITRITE (13NO21-)/CN

E5 1 NITRITE (15N18O21-)/CN

Updated Search

```

E6          1      NITRITE (15NO1801-)/CN
E7          1      NITRITE (15NO21-)/CN
E8          1      NITRITE (CYTOCHROME C;AMMONIA-FORMING) REDUCTASE/CN
E9          1      NITRITE (CYTOCHROME) REDUCTASE/CN
E10         1      NITRITE (H(NO2)21-)/CN
E11         1      NITRITE (NO1801-)/CN
E12         1      NITRITE (NO2-)/CN

```

=> s e3

```
L15          1 NITRITE/CN
```

=> s l15

```
L16          1 NITRITE/CN
```

=> file hcaplus

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST | 10.76 | 393.97 |

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 FILE LAST UPDATED: 6 Jan 2008 (20080106/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l16

```
L17          18239 L16
```

=> d his

(FILE 'HOME' ENTERED AT 00:42:23 ON 07 JAN 2008)

FILE 'REGISTRY' ENTERED AT 00:42:34 ON 07 JAN 2008

E NEMERTELLINE/CN

```
L1          1 S E3
```

```
L2          STRUCTURE UPLOADED
```

```
L3          50 S L2
```

```
L4          40509 S L2 FULL
```

FILE 'HCAPLUS' ENTERED AT 00:44:45 ON 07 JAN 2008

```
L5          6848 S L4/PREP
```

FILE 'REGISTRY' ENTERED AT 00:44:58 ON 07 JAN 2008

Updated Search

L6 STRUCTURE UPLOADED
 L7 8 S L6
 L8 STRUCTURE UPLOADED
 L9 21 S L8
 L10 420 S L8 FULL

 FILE 'HCAPLUS' ENTERED AT 00:46:51 ON 07 JAN 2008
 L11 746 S L10/RCT
 L12 260 S L11 AND L5

 FILE 'REGISTRY' ENTERED AT 00:47:10 ON 07 JAN 2008
 E NITRITE/CN

 FILE 'HCAPLUS' ENTERED AT 00:47:25 ON 07 JAN 2008
 S E3

 FILE 'REGISTRY' ENTERED AT 00:47:28 ON 07 JAN 2008
 L13 1 S E3/CN

 FILE 'HCAPLUS' ENTERED AT 00:47:28 ON 07 JAN 2008
 L14 18239 S L13

 FILE 'REGISTRY' ENTERED AT 00:47:36 ON 07 JAN 2008
 E NITRITE/CN
 L15 1 S E3
 L16 1 S L15

 FILE 'HCAPLUS' ENTERED AT 00:47:53 ON 07 JAN 2008
 L17 18239 S L16

=> d his

(FILE 'HOME' ENTERED AT 00:42:23 ON 07 JAN 2008)

 FILE 'REGISTRY' ENTERED AT 00:42:34 ON 07 JAN 2008
 E NEMERTELLINE/CN
 L1 1 S E3
 L2 STRUCTURE UPLOADED
 L3 50 S L2
 L4 40509 S L2 FULL

 FILE 'HCAPLUS' ENTERED AT 00:44:45 ON 07 JAN 2008
 L5 6848 S L4/PREP

 FILE 'REGISTRY' ENTERED AT 00:44:58 ON 07 JAN 2008
 L6 STRUCTURE UPLOADED
 L7 8 S L6
 L8 STRUCTURE UPLOADED
 L9 21 S L8
 L10 420 S L8 FULL

 FILE 'HCAPLUS' ENTERED AT 00:46:51 ON 07 JAN 2008
 L11 746 S L10/RCT
 L12 260 S L11 AND L5

 FILE 'REGISTRY' ENTERED AT 00:47:10 ON 07 JAN 2008
 E NITRITE/CN

 FILE 'HCAPLUS' ENTERED AT 00:47:25 ON 07 JAN 2008
 S E3

Updated Search

FILE 'REGISTRY' ENTERED AT 00:47:28 ON 07 JAN 2008
L13 1 S E3/CN

FILE 'HCAPLUS' ENTERED AT 00:47:28 ON 07 JAN 2008
L14 18239 S L13

FILE 'REGISTRY' ENTERED AT 00:47:36 ON 07 JAN 2008
E NITRITE/CN
L15 1 S E3
L16 1 S L15

FILE 'HCAPLUS' ENTERED AT 00:47:53 ON 07 JAN 2008
L17 18239 S L16

=> s l17 and l12
L18 0 L17 AND L12

=> s l12 and l17'
MISMATCHED QUOTE 'L17''
Quotation marks (or apostrophes) must be used in pairs,
one before and one after the expression you are setting
off or masking.

=> s l12 and l17
L19 0 L12 AND L17

=> s l12 and copper
968463 COPPER
474 COPPERS
968534 COPPER
(COPPER OR COPPERS)
L20 8 L12 AND COPPER

=> s l20 and nitrite
63708 NITRITE
26074 NITRITES
79792 NITRITE
(NITRITE OR NITRITES)
L21 1 L20 AND NITRITE

=> d l21, ibib abs hitstr, 1

L21 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:696875 HCAPLUS
DOCUMENT NUMBER: 143:155307
TITLE: Process for the manufacture of 2,3-dichloropyridine
INVENTOR(S): Shapiro, Rafael
PATENT ASSIGNEE(S): E.I. Dupont de Nemours and Company, USA
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 2005070888 | A2 | 20050804 | WO 2005-US2462 | 20050121 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, | | | | |

LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
 NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
 TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
 EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
 RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
 MR, NE, SN, TD, TG

| | | | | |
|--|----|----------|------------------|------------|
| AU 2005206576 | A1 | 20050804 | AU 2005-206576 | 20050121 |
| CA 2553850 | A1 | 20050804 | CA 2005-2553850 | 20050121 |
| EP 1706381 | A2 | 20061004 | EP 2005-712075 | 20050121 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS, YU | | | | |
| CN 1910152 | A | 20070207 | CN 2005-80002691 | 20050121 |
| BR 2005006502 | A | 20070227 | BR 2005-6502 | 20050121 |
| JP 2007523065 | T | 20070816 | JP 2006-551437 | 20050121 |
| US 2007161797 | A1 | 20070712 | US 2006-583635 | 20060620 |
| IN 2006DN03640 | A | 20070824 | IN 2006-DN3640 | 20060623 |
| MX 2006PA08208 | A | 20060831 | MX 2006-PA8208 | 20060719 |
| PRIORITY APPLN. INFO.: | | | US 2004-539068P | P 20040123 |
| | | | WO 2005-US2462 | W 20050121 |

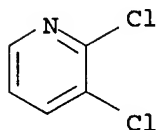
OTHER SOURCE(S): CASREACT 143:155307

AB A method for preparing 2,3-dichloropyridine is disclosed in which 3-amino-2-chloropyridine is contacted with an alkali metal nitrite in the presence of aqueous hydrochloric acid to form a diazonium salt; and the diazonium salt is subsequently decomposed in the presence of copper catalyst wherein at least about 50% of the copper is the copper(II) oxidation state.

IT 2402-77-9P, 2,3-Dichloropyridine
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for the manufacture of 2,3-dichloropyridine)

RN 2402-77-9 HCAPLUS

CN Pyridine, 2,3-dichloro- (CA INDEX NAME)

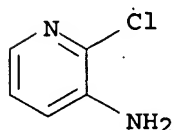


IT 94770-75-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP
 (Preparation); RACT (Reactant or reagent)
 (process for the manufacture of 2,3-dichloropyridine)

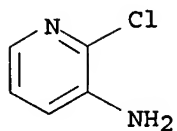
RN 94770-75-9 HCAPLUS

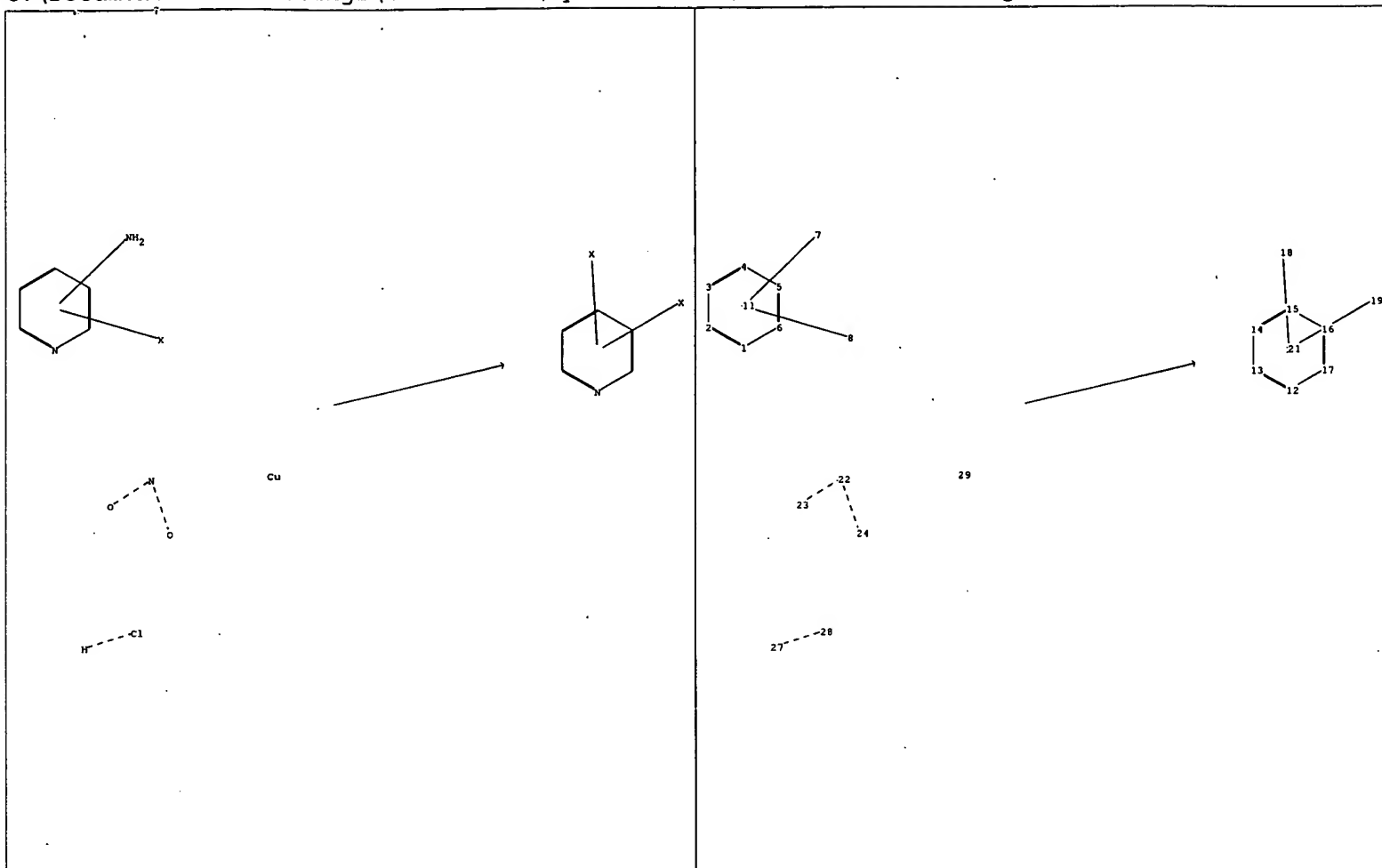
CN 3-Pyridinamine, 2-chloro-, monohydrochloride (9CI) (CA INDEX NAME)



● HCl

IT 6298-19-7, 3-Amino-2-chloropyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for the manufacture of 2,3-dichloropyridine)
RN 6298-19-7 HCAPLUS
CN 3-Pyridinamine, 2-chloro- (CA INDEX NAME)





chain nodes :

7 8 18 19 22 23 24 27 28 29

ring nodes :

1 2 3 4 5 6 12 13 14 15 16 17

chain bonds :

22-23 22-24 27-28

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 12-13 12-17 13-14 14-15 15-16 16-17

exact/norm bonds :

22-23 22-24 27-28

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 12-13 12-17 13-14 14-15 15-16 16-17

isolated ring systems :

containing 1 : 12 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:CLASS 19:CLASS 20:Atom
21:Atom 22:CLASS 23:CLASS 24:CLASS 27:CLASS 28:CLASS 29:CLASS

fragments assigned reactant role:

containing 1

fragments assigned product role:

containing 12

fragments assigned reactant/reagent role:

containing 22

containing 27

containing 29